Plasma levels of TOS, TAS and OSI were significantly higher in patients with neonatal sepsis before therapy as compared to the control group (p<0.000, p<0.000 and p<0.000, respectively) and plasma PON-1 level was significantly lower (p<0.000). TAS levels in after treatment were significantly higher than in the control group (p = 0.009), while TAS, OSI and PON-1 levels were similar in after treatment compared to control group (p = 0.0.078, p=0.597, p=0.086, respectively).

Conclusion
61.5%, for PCT; 91.7%, 75%, 81.5% and 88.2%, for uNGAL; 91.7%, predictive values, respectively: for CRP; 58.3%, 80%, 77.8% and cannot differences CRP, PCT and uNGAL levels between groups. On group, uNGAL levels were found 5.78±1.6ng/ml. We found significantly lower plasma PON-1 level was significantly lower (p<0.000, p<0.000, respectively).

Materials and Methods
Between February - May 2011, preterm infants admitted to NICU between the ages of 7 to 28 days divided into two groups: 24 cases with clinical sepsis (gestational age 32.8±1.45w) and 20 cases as control group (gestational age 35.1±4.9w).

Results
There is no difference in two groups in terms of demographic features of babies. At 1. and 7. days of treatment in sepsis group, CRP (median:25.09ng/mLvs.6.35ng/mL), PCT (median: 17.11ng/mlvs.13.9ng/ml) and uNGAL levels were found 45.69±18.37ng/ml, 7.89±1.49ng/ml respectively. In control group, uNGAL levels were found 5.78±1.6ng/ml. We found significant differences CRP, PCT and uNGAL levels between groups. On the seventh day of treatment, CRP, PCT and uNGAL levels significantly decreased.

We found that the sensitivity, specificity, positive and negative predictive values, respectively: for CRP, 58.3%, 80%, 77.8% and 61.5%, for PCT, 91.7%, 75%, 81.5% and 88.2%, for uNGAL; 91.7%, 100%, 100% and 90.9%.

Conclusion
Urinary neutrophil gelatinase-associated lipocalin (uNGAL) seems to be more sensitive and specific, reliable biomarker than serum CRP and PCT. We believe that uNGAL unlike other biomarkers that does not require a blood sample, non-invasive and non-sterile conditions, with small amounts of urine collection in newborn sepsis might be an ideal biomarker.

Objective
Urinary neutrophil gelatinase-associated lipocalin (uNGAL) has been suggested as a useful marker in limited recent studies for diagnosis of sepsis in pediatric and adult patients. We aimed to determine the value of uNGAL levels in early diagnosis of late-onset sepsis in preterm babies.

Materials and Methods
Between February - May 2011, preterm infants admitted to NICU between the ages of 7 to 28 days divided into two groups: 24 cases with clinical sepsis (gestational age 32.8±1.45w) and 20 cases as control group (gestational age 35.1±4.9w).

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Urinary neutrophil gelatinase-associated lipocalin (uNGAL) seems to be more sensitive and specific, reliable biomarker than serum CRP and PCT. We believe that uNGAL unlike other biomarkers that does not require a blood sample, non-invasive and non-sterile conditions, with small amounts of urine collection in newborn sepsis might be an ideal biomarker.

Background and Aims
The aim of this study was to investigate the value of pro-adrenomedullin (pro-ADM), as a marker of neonatal sepsis while comparing it with conventional markers of infection in newborns.

Methods
Subjects were stratified into three groups; proven sepsis (Group 1a) and clinical sepsis (Group 1b) and the control group (Group 2) consisted of gestational age and birth weight matched newborns. Sequential measurements of white blood cell (WBC) count, C-reactive protein (CRP), interleukin-6 (IL-6) and pro-ADM were compared between groups.

Results
A total of 76 patients with neonatal sepsis (51 with proven sepsis and 45 with clinical sepsis) and 52 healthy controls were enrolled. Mean baseline serum levels of CRP, IL-6 and pro-ADM were significantly higher in both Group 1a and Group 1b compared to healthy controls (p<0.001 for both). Although mean baseline CRP and IL-6 levels were similar between groups, mean baseline pro-ADM level was higher in the proven sepsis group than the clinical sepsis group (p<0.001).

Conclusion
This is the first clinical study to investigate the value of pro-ADM for the diagnosis of proven and clinical sepsis in a newborn cohort including preterm newborns. Use of pro-ADM in combination with other acute phase reactants such as CRP and IL-6 for the diagnosis and follow-up of patients with neonatal sepsis has high sensitivity and specificity.

Background and Aims
Clinical diagnosis of neonatal sepsis has always been challenging. Recent studies have suggested that

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Cut-off</th>
<th>Sens</th>
<th>Spec</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP (mg/dL)</td>
<td>7.5</td>
<td>71.57</td>
<td>98.53</td>
<td>0.852 to 0.928</td>
</tr>
<tr>
<td>IL6 (pg/mL)</td>
<td>&gt;37.4</td>
<td>59.71</td>
<td>77.55</td>
<td>0.687 to 0.789</td>
</tr>
<tr>
<td>Pro-ADM (au)</td>
<td>&gt;157.1</td>
<td>78.64</td>
<td>81.63</td>
<td>0.807 to 0.890</td>
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<tr>
<td>MVN (au)</td>
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<td>81.76</td>
<td>92.65</td>
<td>0.869 to 0.945</td>
</tr>
<tr>
<td>OSI (au)</td>
<td>&gt;7.5</td>
<td>71.57</td>
<td>98.53</td>
<td>0.852 to 0.928</td>
</tr>
</tbody>
</table>

Table 2. Test results and models’ performance of sepsis group

Parameter Cut-off Sens Spec 95% Confidence Interval
CRP (mg/dL) = –1.17+0.015*[CRP]+0.009*[MVN].

Model 2: Sepsis = –1.30+0.0156*[CRP]+0.0074*[MVN]+0.0123*[VDW].

Model 3: Sepsis = –0.94+0.0043*[IL6]+0.011*[CRP]+0.0069*[MVN].

These models gave more sensitivity and specificity than usage of MVN, VDW, IL-6 and CRP alone.

Conclusion
We suggest to use combination of MVN and VDW with markers such as CRP and IL-6, and use diagnostic models created by using EMMA including these markers.
Interleukin-6 assays can be useful in diagnosis of sepsis alongside CRP. This study looks at the influence of IL-6 and CRP results on clinical decision making.

**Methods** A prospective web-based questionnaire survey of both junior doctors (online survey) and Consultants (focus group) was carried out using 20 hypothetical scenarios of neonatal sepsis along with hypothetical IL-6 and CRP results. The differences in diagnostic certainty of sepsis on the basis of clinical history alone were compared with that of addition of CRP and IL-6 results, within and between both the trainee and expert groups. (Expert group consensus responses were considered as gold-standard).

**Results** Experts: Based on clinical history, CRP and IL-6 results, experts agreed to the possibility of sepsis in only 25% of the clinical situations. Antibiotic usage by experts subsequent to sepsis categorisation was reduced with the availability of CRP results. (55% after IL-6 vs. 30% after CRP results).

Trainees: CRP results were shown to be statistically significant in changing clinician’s decisions. Trainees favoured a greater likelihood of sepsis when IL-6 results were available prior to CRP results. Using the focus group consensus as gold standard, IL-6 results were used by trainees for confirming sepsis irrespective of whether they were available prior to or after CRP results.

**Conclusion** Both point-of-care IL-6 test results and CRP results helped doctors in confirming a diagnosis of sepsis. IL-6 was not useful in ruling out sepsis.

**Background and Aims** Premature infants are exposed to numerous perinatal stresses such as hypothermia, hypoxia, hypotension, umbilical vessel catheterization. All of these have been postulated as risk factors for ischemic injury of the neonatal intestine. The intestinal permeability is increased in bacterial translocation which can lead to endotoxemia and multiple organ failure. The aim of this study was to determine anti endotoxine immunity (AEI) in premature infant depend on birth weight.

**Methods** Premature newborns were divided into two groups. The first group consisted of 61 newborns with birth weight more than 1500 gram and 20 infant with birth weight less than 1500 gram were included in second study. In this study urinary intestinal fatty acid bind protein (i-FABP) level was measured as a specific marker for intestinal mucosal damage and serum LBP concentration was detected for estimation of AEI. Both markers were determined by enzyme linked immunosorbent assay.

**Results** The mean i-FABP concentration in the second group (1.75±0.62 ng/ml) was elevated in 1.4 times compared with the first group (1.23±0.23 ng/ml). Significant high urine i-FABP concentration was observed in died infants of second group (2.39±0.88 ng/ml, p<0.05). In contrast the serum LBP level in newborns of second group was lower (23.1±4.5 ng/ml) in 1.4 time compared with newborns of first group (32.1±4.23 ng/ml).

**Conclusion** Very low birth weight newborns are at increased risk of intestinal mucosal injury and endotoxemia and decreased serum LBP level in these infants should be considered as an unfavorable factor for sepsis.

**Background and Aims** QCRP being acute phase reactant has predictable pattern of rise and fall following inflammation. Few studies have used QCRP for appropriateness of antibiotic therapy.

To determine the difference in the magnitude of change in QCRP values from baseline to 48 h in subjects with culture positive neonatal sepsis receiving sensitive antibiotics (CPSA) versus those receiving resistant antibiotics (CPRA).

**Methods** Neonates < twenty-eight days with suspected sepsis and baseline QCRP >10 mg/L enrolled. Serum samples at 24, 36 and 48 h after initiation of antibiotics were analyzed for QCRP (PETIA: Particle enhanced turbidimetric immunoassay). After collecting blood culture [BD BACTEC™ Peds Plus/F] report, CPSA and CPRA were cases and sterile cultures were controls. Mann-Whitney U test, linear regression, ROC curve and Youden’s index were used to measure appropriateness of antibiotic therapy.

**Results** In one hundred forty-one sepsis episodes forty-five were CPSA, forty-four were CPRA and fifty two were culture sterile. The difference in QCRP between CPSA and CPRA was significant at all time points (p<0.001). The area under ROC curve was highest for \( \Delta \) CRP 24–48 h (CRP 24 hr - CRP 48 hr) and \( \Delta \) CRP 24–48 h (CRP 24 hr - CRP 48 hr) i.e 0.879 (CI: 0.80, 0.95) and 0.89 (CI: 0.81, 0.96) respectively. If \( \Delta \) CRP 24–48 h was ≥ 6.2 mg/L, the infant was likely to be getting sensitive antibiotics (sensitivity 86%, specificity 84%).

**Conclusion** A decrease in serum QCRP by 6.2 mg/L can be used as a useful indicator of the appropriateness of antibiotics in neonatal sepsis.